

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
2002 Biennial Review of Regulations	)	WT Docket No. 02-310
Within Purview of the Wireless Bureau	)	
	)	
Public Notice FCC 02-264	)	
Released September 26, 2002	)	
	)	

Reply Comments of  
Warren C. Havens and Telesaurus Holdings GB, LLC  
DBA LMS Wireless

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Regarding  
902-928 MHz and 217-225 MHz

Including  
Summary White Paper

Regarding Use of 902-928 MHz  
Supplemented by 217-225 MHz, 4.9 GHz, & 5.9 GHz  
for Public Safety, Homeland Security, and Critical Infrastructure,  
and Associated Private Enterprise Wireless  
an Advanced-Technology Land Infrastructure and Safety Service  
("ATLIS")

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Warren C. Havens (“Havens”) and Telesaurus Holdings GB, LLC (“Telesaurus”) (in which Havens holds majority controlling interest) (together, “LMS Wireless,” their DBA [“LMSW”]), hold the LMS Multilateration (“LMS-M”) ‘A’-block licenses (6 MHz of the 902-928 MHz band) that contain approximately 80% of the population of the nation. Havens also holds numerous FCC licenses in the VHF Public Coast, AMTS, and 220 MHz Services as well as interests in Net Radio Group Communications LLC which holds a large number of Phase II 220 MHz licenses.

In this proceeding, LMSW has reviewed the various filing. CTIA requests repeal all regulations that are no longer necessary in the public interest. US Telecomm Association asks to limit the time to consider Petitions for Reconsideration and Waiver Requests to one year. LMSW agrees with both. Excessive and overly complex regulation and slow decision making on often essential petitions and waivers are the most debilitating factors in attempting to launch and sustain new business based on FCC licenses.

On the other hand, as noted below (especially in Attachment 1b), the FCC should mandate certain wireless clearly in the public interest and act promptly on appropriate rulemaking for this purpose. Other than such forms of wireless for fundamental public safety and the like, the FCC should reduce and simplify regulation, increase flexibility for all licensed services, and act more quickly.

It should also reform its administrative appeals process such that the persons reviewing decisions are independent of the bureau that made the decision. The current procedure is fatally flawed.

API asks to reallocate remaining MAS licenses that were not auctioned for single-site licensing. Motorola asks to change §90.210 such that Emission Mask G allows for design

flexibility. APCO comments on 9-1-1 emergency requirements. In these Reply Comments, LMSW addresses these and related broader issues within the white paper and related filings presented below.

LMSW is preparing filings requesting rule changes and waivers involving 902-928 MHz and 217-225 MHz but has not yet completed them. LMSW expects that some of the suggestions noted below will be modified in such future filings, but expect to retain the fundamental concepts presented below.

LMSW submits herein 1) a copy of its Reply Comments in the Spectrum Task Force Proceeding in which it presents the “ATLIS” white paper noted on the cover page of this filing which involves a nationwide *multi-band* service, and 2) suggested rule changes in radio bands that are proposed components of ATLIS: 902-928 MHz and 217-225 MHz.<sup>1</sup> *This is one proceeding where it would be especially appropriate to consider rule changes to facilitate such a multi-band service, since this proceeding concerns various wireless services.*

LMSW submits that, given the current status and clear direction of the wireless market and technology, a single-band service for any major wide-area mobile communication is anachronistic, at least if FCC regulation did not stand in the way and market demand and technological capabilities could decide as they should.

In sum, as further described in the attached, that is because for wide-area coverage (from hot-spot and urban to very rural) and for multiple services now demanded (from very high speed to traditional voice and low-speed data, as well as low- to high- latency), a network needs a

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<sup>1</sup> No rule change suggestions are made here regarding the 4.9 GHz and 5.9 GHz bands, also proposed components of ATLIS, since licensing and other final rules for these bands have not yet been promulgated. LMSW has commented on fundamental rules (permitted uses,

variety of spectrum, some in a range such as 200 MHz, some in a range such as 900 MHz, and some in a range such as 4-5 GHz. This is especially true for Public Safety, Critical Infrastructure, and major private enterprises that each have similar needs for very wide area coverage, and various types of services that are well integrated and available across the nation for interoperability, economies of scale, and other benefits. These entities need higher-grades of communication than the commercial mass market, just as enterprise computing is a higher-level than personal computing. However, thus far they have less advanced, less integrated and interoperable, and less cost effective wireless than the commercial mass market services. The proposed ATLIS service is designed to substantially remedy this problem.

Further, ATLIS would provide an important test bed for the type of public-private partnerships that are essential for both sectors to effectively develop and sustain mission critical communications, especially within realistic funding constraints. There are ideal synergies to draw upon. The Commission has recognized the value of such partnerships. See discussion and references in Attachment 1 below.

#### The ATLIS Multi-Band Proposal

The ATLIS proposal, noted in the caption page and section above, is included at the end of Attachment 1 below. This Attachment 1, the LMSW Reply Comments in the Spectrum Task Force proceeding which attaches the LMSW Reply Comments in the 4.9 GHz proceeding, further describes the rationale for the ATLIS multi-band service.

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eligibility, value in coordination with 902-928 MHz, etc.) for these bands in respective dockets. See Exhibit 5 of Attachment 1 hereto.

## Proposed Rule Changes for ATLIS Component Bands

LMSW proposes the following basic rule changes to facilitate commencement of services within the scope of the ATLIS proposal. More specific changes consistent with the below will be presented in Reply Comments in this docket, and in pending dockets regarding the subject radio bands. The rationale behind all below suggested changes are given in the attachments hereto.

902-928 MHz and 217-225 MHz, each, replace current rules with new one consistent with below allowing maximum flexibility and maximum potential for public-private initiatives (shared technology, equipment, networks, priority access, etc.)

### New rules for 902-928 MHz

Consistent with Attachment 1 below, replace current rules with rules providing as follows:

1. Divide the 13 MHz allocated for Non-multilateration<sup>2</sup> into two equal amounts.

Assign one exclusively to Public Safety (“PS”), and the other exclusively to Critical Infrastructure (“CI”) (such terms defined in Attachment 1 below). Allow these entities to use the spectrum for any wireless purpose, mobile and fixed, non-interconnected (including IP connection) and interconnected, under technical rules appropriate to maximize flexible use for their purposes and allow for appropriate sharing and frequency reuse. Without such change, this 13 MHz is virtually unused in the United States.<sup>3</sup>

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<sup>2</sup> 12 MHz exclusive to Non-multilateration, and, herein, I include 1 of the 2 MHz that is shared between Non-multilateration and Multilateration B block. See §90.357. In this regard, LMSW proposes to split this block so that there is no sharing, which would result in 13 MHz exclusively allocated to Non-multilateration services.

<sup>3</sup> There are roughly 2,500 Non-multilateration stations in the nation, per the FCC ULS database, used for EZ Pass and the like, each one using highly directional antennas and a communication link operating only within a few hundred feet of the station. In the rest of the

2. In light of item “1” above, provide for protection of current and future DSRC stations operated by PS and CI entities that use Non-multilateration spectrum. (Little protection needed due to the very short range highly directional applications, but if use under “1” caused harmful interference, this would have to be corrected. Also, see Attachment 1 below: DSRC will in time migrate to the 5.9 GHz ITS band.)

3. Obtain agreement from NTIA to relinquish Federal priority use for radiolocation in 902-928 MHz, except for offshore radar and military base uses, and other uses not detrimental to the above proposed uses, including because such proposed uses include a host of Federal PS uses, the Federal goal of nationwide PS interoperability, and DOT interest in ITS wireless applications that would include State and local uses by highway-related governmental entities (State DOT’s, transit, multi-agency multi-modal ITS projects, etc.).

4. Allow the Multilateration licensees to use their spectrum for the same range of services and under same technical rules as noted above under “1”—to serve PS or CI (such as, if they need more capacity), or to serve Private Enterprise companies (herein, any use of Multilateration called “Private Enterprise” or “PE”). This would be presumptively CMRS service, but allowed to provide PMRS service in addition to CMRS, or, in lieu of CMRS (e.g., by addition to §20.9(b)).<sup>4</sup>

5. Do not impose location requirements on the PE segment, or the PS or CI allocations noted above.

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nation, apart from nominal use by Federal entities, this spectrum is unused for licensed services. This is an enormous waste.

<sup>4</sup> See *Second Report and Order* in General Docket 93-252, 74 RR 2d 835, 9 FCC Rcd 1411, 1994 FCC LEXIS 1444, FCC 94-31, Released: March 7, 1994, Adopted: February 3, 1994 (the “*CMRS Second Report and Order*”). See end of this 902-928 MHz section regarding the Commission contemplating LMS Multilateration becoming CMRS.

The structure noted in “1” to “4” is sufficient for robust development without imposing additional restrictions and requirements. Let the market decide, in this case, including various private-public partnerships facilitated by the side-by-side spectrum allocations. Per the rationale in the attached, the PE, PS, and CI licensees will have compelling reasons to cooperate in selection of common technology and equipment, in sharing network development, construction, and operation, in priority access, and otherwise in making this band a success. Further restrictions and requirements will dampen if not kill the chances of these three sectors working creatively, synergistically, and promptly to make this band the success it can be.)

6. Grandfather Part 15 devices on 902-928 MHz in use in systems serving CI or PS by a Cutoff Date, subject to being retuned to only the PS or CI allocation noted in “1” above. After this Cutoff Date, prohibit further sales of Part 15 devices in this band. (These systems could be maintained and expanded after the Cutoff via use of Part 90 devices with the same or compatible attributes as the pre-Cutoff Part 15 devices.)

In as much as the market for products in this band should dramatically increase per the above proposal, the vendors and current end-users of such equipment would be benefited.

Allocate additional spectrum for Part 15 above 5 GHz if Part 15 interests demonstrate a need for spectrum to replace its use in 902-928 MHz.<sup>5 6</sup> At minimum, “fix” the “Safe Harbor”

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<sup>5</sup> E.g., see white paper of Motorola submitted in the Spectrum Task Force proceeding on Part 15 issues, discussing the need to use spectrum capable of wide-area communications for that purpose, and allocating for Part 15 purposes more spectrum above 5 GHz as may be needed.

<sup>6</sup> In short, it is a great waste of 900 MHz spectrum to encumber it by an underlayment of low-power Part 15 devices and even the potential of substantial Part 15 device traffic and attendant noise. There is ample spectrum for Part 15 applications to expand into above 5 GHz. LMS will be developed regardless of changes in rules pertaining to Part 15 devices. But without changes as noted above, LMS development may be slowed due to need for technology and system deployment to minimize impact of potential substantial Part 15 usage. However, whether sooner or later, LMS networks will be widely deployed and used, and as this proceeds, there is little doubt that the major development in Part 15 systems and individual devices will be at 2.4

such that it is effective for the clear purposes for which it was established. See attached (adding a proximity limitation to the current height/power limitations, etc.).

7. By the same Cutoff, a similar arrangement regarding ISM devices as noted above for Part 15 devices, such that current uses are protected, etc.

8. In parallel with changing rules as noted above, restart the clock on the construction deadlines for Multilateration licenses, since there is no equipment currently available for Multilateration systems and the most appropriate equipment and construction plans can only be designed and developed after the band is restructured as noted above.<sup>7</sup>

9. Multilateration licensees should be given bidding credits for using their spectrum to serve Public Safety entities, including for priority access in emergencies, similar to what is allowed per Tribal Lands bidding credit program. This should be in addition to Tribal Lands bidding credits, and should be available retroactively via refunds if the bid amounts have already been paid.

In further support of the above, we note that the FCC always contemplated that LMS services would expand and would involve a variety of types of communication, including CMRS

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and 5 GHz (802.11 versions, etc.) and other bands, and development of UWB. Thus, it is likely that even with no rule changes regarding Part 15 devices in this band, such device use will diminish as it has to contend more and more with LMS operations and as the other, prime Part 15 bands are more and more successful. If their success leads to congestion, the solution is not to hope to use a licensed band like LMS as if it is a prime Part 15 band such as those noted above as if the licensed services will not be developed and more and more inhibit effective Part 15 usage, but to allocate more spectrum exclusively for Part 15 expansion: wide enough for such expansion and internationally allocated.

<sup>7</sup> At least, LMSW has demonstrated due diligence in development of their LMS Multilateration licenses by the numerous filings at the Commission as to maximizing use of their licenses and the entire 902-928 MHz band, the most recent being the ATLIS-related filings (see Exhibit 5 of Attachment 1 below). If other LMS Multilateration licensees do not demonstrate similar due diligence and commitment, they would not have the same basis for a construction deadline extension. As of the date of this filing, these other licensees have not materially joined or supported LMSW in its initiatives.



services.<sup>8</sup> Indeed, in the contemplating uses for the second ITS service, the 5.9 GHz service, the contemplated uses include PMRS and CMRS, governmental, private-system, and consumer, everything from car-to-car collision avoidance, to highway authority tollbooth toll collection, to high-speed hot-spot communications offered by roadside merchants for a fee for entertainment downloads, or whatever. CMRS providers are the primary communications providers for Telematics services and for governmental ITS wireless (such as CDPD used for transit communications, and for signal and other highway function monitoring). CMRS can only provide such services with the coverage it has and at the prices it does due to it being able to serve the larger market. LMS should be permitted to effectively compete for ITS type wireless and given a clear path, as suggested above and in the attached, to create an important new nationwide service for a wide range of Public Safety, Critical Infrastructure, and synergistic Private Enterprise wireless. (ITS involves all three, but all three include a wider-range of wireless than what is commonly considered ITS wireless.)

New rules for AMTS 217-218 and 219-220 MHz, 218 MHz, 220-222 MHz, and 222-225 MHz (in total, 217-255 MHz)

See discussion of these bands in each attachment below for the basic LMSW proposal for a new service composed of these bands. Consistent with Attachment 1 below, replace current rules with rules providing as follows:

Create a new Part 90 service. Use the rules currently in 220 MHz as the basic framework: for site placement, permitted services, operations, etc.

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<sup>8</sup> E.g., PR Docket No 93-61, Second Report and Order, FCC 98-157, ¶ 17, referencing the CMRS Second Report and Order, GN Docket No. 93-252, 9 FCC Rcd 1411, 1453 (1994), and ¶¶ 98, 99.

This would create a viable 8 MHz-wide service, sufficient in scope for development of needed advanced digital technology and integration with 902-928 MHz as under the ATLIS plan. All current licensees would be benefited, as would equipment providers. Amateurs could take advantage of the components developed for the band and use it in 222-225 MHz on a non-interfering basis.

In 220-225 MHz, Amateurs would remain but on secondary basis, as in 219-220 MHz. See comments above under 902-928 MHz: by the increased viability of the band, including more advanced and cost effective equipment, Amateurs use would be benefited, and Amateurs could more effectively plan roles in Civil Defense situations.

Regarding AMTS: The Commission in the 5<sup>th</sup> Report and Order removed the requirement to provide service coverage to waterway traffic. In recent Orders it removed requirements to provide protection to TV stations, in the Fill-in station rule, and by defining “only suitable” (to protect TV stations) as “especially suitable” (to allow station placement that the applicant favors for its purposes without regard to TV protection). Also, the Commission adopted the 220 MHz service and interference protection contours. There is no remaining basis for distinguishing AMTS and 220 MHz. A similar situation applies to the 218 MHz service. Differing sets of basic rules (site placement, permitted services, operation, etc.) will substantially hinder development of these bands as one more viable service.

### VPC

Rules for inland VPC licenses, and for non-inland VPC licenses when used solely to serve land areas, should be rewritten to make it clear what is permitted, and all restrictions

relating to serving maritime traffic should be removed. In Ex Parte further comments, LMSW will suggest specific changes.

Respectfully,

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## **Attachment 1**

Summary, 8-25-02 [rev3]

ATLIS White Paper  
Regarding Use of 902-928 MHz  
Supplemented by 217-225 MHz and 4.9 GHz  
for Public Safety and Homeland Security, Critical Infrastructure, and Private Enterprise:  
an Advanced-Technology Land Infrastructure and Safety Service  
("ATLIS")

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LMSW has submitted this concept paper in this or similar form to the FCC in various dockets (see last Exhibit below) and to various Public Safety and Critical Infrastructure organizations.

This ATLIS proposal is designed to provide major contributions to meeting the needs of US public safety ("PS") and critical infrastructure entities ("CI")<sup>1</sup> for:

- Additional exclusive spectrum,
- Interoperability,
- Advanced wireless networks, and
- Increased economies of scale, cost savings, and speed of deployment in the above, and the same for business enterprises and certain Intelligent Transportation System ("ITS") functions served in ATLIS by for-profit private-enterprise licensees ("PE").

The proposal is structured for efficiency and financial viability including via:

- (i) No cost of spectrum to PS and CI.
- (ii) Network sharing among multiple PS, CI, and PE via secure VPN's, with
- (iii) PE providing at it cost, via priority preemption, the large interoperable capacity reserve needed by PS and CI for major emergencies.<sup>2</sup>

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<sup>1</sup> Herein "Public Safety" ("PS") means traditional public safety as described in Section 337(f) of the Act, and "Critical Infrastructure" ("CI") means entities described in Section 309(j)(2) of the Communications Act (the "Act").

<sup>2</sup> Regarding the above stated needs, and the above items (ii) and (iii) as major components of a solution, see (i) Viktor Mayer-Schönberger, "Emergency Communications: The Quest for Interoperability in the United States and Europe," John F. Kennedy School of Government, Harvard University, March 2002; available at

- (iv) Appropriate multiple bands: (a) each with RF propagation characteristics and spectrum amounts well suited for respective requirements, from rural coverage and basic wide-area voice and data, to urban coverage, “hot-spot” broadband, and point-to-point links, and (b) which provide the new spectrum needed for new technologies that are more spectrum efficient and for traditional and new applications at lower costs.
- (v) Simple national coordination for the PS and CI spectrum allocations.
- (vi) Other PE and certain CI support of the PS component (described below).
- (vii) Scope and solutions worthy of major Federal and State funding of the PS component including for Homeland Security goals for capital and operating costs.
- (viii) Ability to use/ leverage advanced, cost-effective components and technology from the GSM/UMTS 900 MHz band (the most used mobile spectrum in the world).

The proposed ATLIS involves, in brief:

New exclusive nationwide spectrum allocations for PS and CI comprising:

- (i) Half of 902-928 MHz (one-quarter [6.5 MHz] each to PS and CI), with PS and CI priority access to the other half.<sup>3</sup> The other half licensed to for-profit entities.  
(See table and discussion in Exhibit 1 below.)

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<http://ksgnotes1.harvard.edu/BCSIA/Library.nsf/pubs/Viktor0203>; (ii) PSWN’s *Progress Report on Public Safety Spectrum* (November 2001), page 20, Conclusions and Recommendations); (iii) *The 4.9 GHz Band. . . , WT Docket No 00-32, Second R&O & FNPRM, FCC 02-47 (2-27-02)*, ¶ 46; (iv) *FCC Staff Report on NTIA’S Study of Current and Future Spectrum use by the Energy, Water, and Railroad Industries. . . (7-30-02)*, Conclusion section; (v) Bill Moroney (President of UTC), “Critical Infrastructure Needs Exclusive Spectrum,” (Radio Resources, June 2002); (vi) *Options for Upgrading Utility Wireless Networks*, (KPMG study for UTC, July 2002). Also, in planning future PS wireless, TIA-ETSI comment: “. . . Project MESA . . . reflects the vision of a mobile broadband-shared network that can be simultaneously accessed by multiple users, with multiple applications in a specified geographical area fully independent from availability of public networks and supply of electrical power.”

<sup>3</sup> Re 902-928 MHz, see §90.350 *et. seq.* which describes this “Location and Monitoring Service” (“LMS”) band, thus-far allocated primarily for a broad range of “Intelligent Transportation System” (“ITS”) applications, private and governmental. Regarding these two halves: see §90.357 (see also Table in Exhibit 1 below): the half we propose for PS and CI is the spectrum now used for “Non-multilateration” systems; the other half is what has been licensed by auction for “Multilateration” systems. LMSW (Havens and Telesaurus) holds geographic licenses for the Multilateration A-Block sub-band (the first listed sub-band in §90.357) in about 80% of the nation. One other entity, Progeny LMS LLC, holds over 90% of the rest of the Multilateration spectrum (the next two listed sub-bands).

The Non-multilateration spectrum is currently licensed only for very short-range systems along highways and railways for ID “tag” readers (passive or active transponders on vehicles) for toll collection and other ID purposes. In the vast majority of the nation, this spectrum is unused by

- (ii) Half of 217-225 MHz (one-quarter [2 MHz] each to PS and CI), with PS and CI priority access to the other half.<sup>4</sup> The other half are licensed to for-profit entities. (Regarding availability, see discussion in Exhibit 1 below.)
- (iii) A similar arrangement for the 4.9 GHz band: PS, CI, and PE allocations, for shared networks (details to be provided soon in an Ex Parte filing in WT Docket No. 00-32 based on the ATLIS white paper).

This 200, 900, and 4900 MHz spectrum (and possibly other)<sup>5</sup> would be used (probably with integration of a MSS)<sup>6</sup> for multi-band shared networks: often, not always, (i) sharing in

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licensed operations. Also, the 75-MHz-wide ITS 5.9 GHz band has been recently allocated by the FCC for advanced dedicated short-range communications (similar allocations in other nations for same ITS purposes), and once 5.9 GHz is licensed and developed, operations on 900 MHz Non-multilateration spectrum should migrate to 5.9 GHz. By use of the entire 26-MHz wide 902-928 MHz band for wide-area mobile systems, as we propose, there will always be channels available even in the localities where Non-multilateration systems are still in operation. Part 15 devices use this band, but will not pose a major problem under the ATLIS plan (see next footnote and Exhibit 2 below).

<sup>4</sup> This white paper will show that these particular 900 and 200 MHz bands, contrary to common perceptions, are not substantially used, including by Part 15 unlicensed devices in 902-928 MHz, Amateurs in 222-225 MHz, and apparent licensed operations in 217-222 MHz. Also see Exhibit 1 below.

*Regarding dealing with current users of 902-928 MHz under ATLIS, see Exhibit 2 below.*

<sup>5</sup> Possible other spectrum: (i) the VHF Public Coast (“VPC”) band: 350 to 500 kHz of paired channels in 157/162 MHz. Formerly licensed (with few exceptions) only along the US coastlines, but per FCC auctions in recent years, now licensed also for land mobile throughout the nation. Havens holds the VPC licenses (1 license per area) in most of the Rocky Mountain state areas, and Maritel holds virtually all of the rest of the VPC licenses for land and coastal areas. There is a 50-kHz (two 25-kHz channels, or four 12.5-kHz channels) public safety set aside in the middle of (and in addition to) this auctioned spectrum. Railroad VHF adjoins this VPC band. If Railroads became stakeholders in/ user of multi-band ATLIS networks (with appropriate secured rights and control for their needs), they may, in time, be able to “trade” their substantial VHF spectrum for use rights in ATLIS networks. (ii) The 75-MHz wide 5.9 GHz band allocated for Intelligent Transportation Systems (“ITS”). Besides use for ITS-specific roadway and roadside Dedicated Short Range Communications (“DSRC”), we propose that it could also be used on a non-interfering basis under the ATLIS plan for coordinated PS, CI, and PE use, including “broadband” applications contemplated for the 4.9 GHz band and network point-to-point links. (The DSRC roadway/ roadside uses will leave most of the spectrum (on a MHz-Pop, and MHz-Land Area basis) unused. ITS functions are primarily for public safety (in the broad sense of combined §337(f) and §309(j)(2)) and the proposed ATLIS use of 5.9 GHz would be a natural extension. A description of the relationship between and need to coordinate advanced ITS and PS wireless is in the Project MESA Statement of Requirements, including in §8.6 “Transparent network and system access” in the ETSI draft V.10 at <http://www.projectmesa.org/SoR.htm> .

building and operating secure digital network infrastructure for virtual private networks, and (ii) using all or several of these bands for integrated technology and networks and/or multi-band end-user devices.

Such sharing would be among the three classes of licensees in each band, PS, CI, and PE: for-profit licensees serving businesses needing mission critical communications. Large economies of scale would be achieved yielding lower capital and operating costs, quicker and stronger development, etc.

ATLIS PE would be permitted to lease or otherwise use its spectrum and network capacity without limit to serve ATLIS PS and CI (in addition to private enterprise and individuals); ATLIS CI could lease its excess network capacity to ATLIS PS and PE, and (while less likely) ATLIS PS could do likewise to ATLIS CI and PE.

The core 902-928 MHz spectrum (which would probably carry most of the traffic) is in the GSM 900 band, which has about half of all mobile phones in the world.<sup>7</sup> ATLIS would

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<sup>6</sup> Mobile Satellite Service, such as Globalstar or Iridium, could be useful for coverage remote areas where terrestrial coverage would be too expensive, in some areas before terrestrial coverage is provided, as well as for redundancy and special applications (see the white paper). For this purpose, some ATLIS radios would also have MSS-capability. LMSW has met with these two MSS operators. They are seeking to provide these niche functions as part of their core business, especially for large terrestrial service with major-entity users as the proposed ATLIS. Also, via bankruptcy and financial restructuring, most of the billions of dollars in original equity and debt has been extinguished, and they are now able to price far more attractively, as has been widely reported in the trade press.

<sup>7</sup> See: <http://www.gsmworld.com/news/statistics/index.shtml>, and <http://www.gsmworld.com/news/statistics/substats.shtml> :

GSM 900 (GSM using 900 MHz)<sup>7</sup> has 361 million users. GSM 900 components are also in all phones of all GSM 900/1800 subscribers, another 223 million, totaling 584 million out of a total 684 million all GSM subscribers which have GSM 900 RF components. This is 85.4% of all GSM subscribers (April '02). GSM accounts for 71% of all world digital subscribers. Thus, GSM 900 MHz components are in 58% (85.4% x 68%) of all CMRS subscriber phones worldwide.<sup>7</sup> This is roughly two orders-of-magnitude larger than the US market for public-safety and other mission-critical wireless.

Regarding leveraging and adapting GSM 900: One example is GSM-R for railroads (see: <http://gsm-r.uic.asso.fr/>): it uses European allocations in 876 - 915 MHz and 921 - 960 MHz, begun in late 1990's, currently being deployed in linked nationwide systems in Europe leveraging and adapting standard GSM 900 technology and components for mission-critical railroad communications. The same could be done for land-mobile mission critical communications utilizing newer "3G" on GSM 900, in fact, the GSM-R association (see <http://gsm-r.uic.asso.fr/faq.html>) writes: "if we were to start from scratch now we would embrace other possible solutions . . . software radio . . . or UMTS [commercial mobile 3G

leverage for its use the advanced cost-effective technology and components developed for this GSM band.

In addition to above-noted cost savings by the large economies of scale involved, direct and indirect financial support would be provided to the PS licensees/ users for initial construction and ongoing operation by:

- (i) The CI licensees/ users, by providing for the shared networks use of CI antenna sites, fiber, power, right of way, maintenance, etc. on an at-cost basis or other attractive rate.  
  
(PS would also provide on the same basis use of the facilities it owns for the shared networks.)
- (ii) The PE licensees, and licenses, by providing:
  - (a) At no cost, the above-noted priority access.
  - (b) At no cost, use of PE (Multilateration) spectrum in the 902-928 MHz range where the PS spectrum is used by Non-multilateration operations (this provided also by PE to CI.
  - (c) Proceeds of PE ATLIS-spectrum auctions provided to PS towards its ATLIS capital and operating costs.<sup>8</sup>

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technology]. Also . . . TETRA has no allocation in the railway spectrum range in the 900MHz band.”

Further, DARPA in the US has a “4G” wireless technology development project called “XG.” (See: <http://www.darpa.mil/ato/programs/xg.htm>, . It is being developed for both US military and non-military wireless. Dr. Paul Kolodzy, now head of the FCC Spectrum Task Force, was the initial head of this XG project. I have spoken with Dr. Kolodzy and the current director, Preston Marshall, concerning use of the 902-928 MHz band (and perhaps the other spectrum proposed for ATLIS) as a test bed for, and a major ultimate home for widespread deployment of, the DARPA XG technology.

In any case, initial and future-generation technology for the ATLIS bands would be selected by stakeholder consensus, including public safety. In my view, logically, it would commence with current-generation technology as used in P25, Tetrapol, and narrowband telemetry, and migrate to a mission-critical implementation of 3G or 4G technology developed for commercial wireless, perhaps, as noted, that derives from the DARPA XG project.

<sup>8</sup> LSMS is proposing for the 4.9 GHz and 5.9 GHz that parts be auctioned to PE licensees via bids (after opening cash bids from up front payments) that constitute obligations to pay a certain percent of gross income from the wireless services using the bid-for spectrum, with such revenue stream being paid (not to US Treasury) but to the PS ATLIS coordinator for use by ATLIS PS functions (construction, operations, upgrades, etc.) This will not only help PS funding, but also motive PS and PE to cooperate, along with CI, for efficient shared networks.



- (iii) Monthly fees paid to PS towards its ATLIS costs from monthly fees charged to users of CMRS devices for the safety capabilities of mandated ATLIS RF-chips in all CMRS devices to be used for E911, basic ITS vehicular functions, and other critical safety functions (emergency broadcasts, etc). See description in Exhibit 3 below.
- (iv) Major Federal financial support (including for state and especially local PS which most needs additional funding) including for the Homeland Security and interoperability functions.

Together, the above support would greatly offset costs to PS for development and use of its component of ATLIS.

In exchange for their contributions noted above and herein to PS and CI, ATLIS PE licensees would receive:

- (i) Rights to use, at no (further) cost, the common network infrastructure: antenna systems, backhaul, switches and nodes, power, etc. provided by PS and CI (see above). LSM-M would secure and pay for the base-station radios and any other equipment specific to operation on its ATLIS spectrum.
- (ii) Rights to use, on an at-cost basis, PS and CI infrastructure (antenna and equipment sites, backhaul, etc.) suitable for expansion of the LMS-M networks beyond what PS and CI may be operating in a given area and time. This right would be subject to a reciprocal right of the PS and CI entities with this infrastructure to share in this LMS-M network expansion if they chose to at a later date, on the same at-cost basis.

To be most effective, there would be one nationwide authority for PS (for spectrum assignments, technology selection, system deployments, network sharing arrangements with the other participants, etc.), logically, a Federal Homeland Security function, but which looks to

APCO, AASHTO, and other PS organizations, and one authority for CI as UTC, AAR, and other CI entities may decide.<sup>9</sup>

In addition, this ATLIS spectrum would allow for better technology via “turnaround.”<sup>10</sup> Unless there is major new spectrum available, major operators whose spectrum is used up via current technology have to use compromise solutions to ease out of old into compromised new technology. For example, if old technology in congested spectrum uses 25 kHz channel pairs, then a compromise solution for new technology may be limited to “refarming” those into more narrow channels or TDMA in 25 kHz, whereas, with sufficient new spectrum such as under ATLIS, new technologies using broader channels, and techniques such as Time Division Duplex,

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<sup>9</sup> Also, regarding PE licensees in these bands, it would be relatively easy for these to cooperate to implement ATLIS functions since: (i) There would be one 4.9 GHz PE license, and one 5.9 GHz PE license, each awarded by auction (see footnote \_\_ above) and conditioned upon all ATLIS requirements. (ii) There are only two LMS Multilateration licensees (LMSW [Havens and Telesaurus] and Progeny LMS LLC) that hold over 85% of all LMS Multilateration spectrum (half of the 902-928 MHz), and even if Progeny does not participate, LMSW participation is sufficient. (iii) There are a handful of licensees that hold the vast majority of all geographic or multi-site licenses issued in the 217-222 MHz range (and few pre-auction licenses are still operational and valid). (What is not licensed yet would be set aside for PS, and the 222-225 would be reallocated from Amateur to PS use.) Accordingly, it would be relatively easy for the small number of PE licensees involved to coordinate participation in various ATLIS networks with the PS and CI ATLIS authorities.

<sup>10</sup> An example of why “turnaround” spectrum is needed is in the 800 MHz US cellular bands. These became well used in major markets with analog first generation (1G) technology, and when the need arose for 2G digital, TDMA IS-95 was (for some time) the compromised choice due to it fitting in the existing channel width. With the spectrum well used, it was more difficult to implement wider-channel technology such as CDMA and GSM and thus, these took longer time to deploy. Had there been sufficient new “turnaround” spectrum, then the US cellular industry may have reached a consensus, as Europe did, on wider-band technology. These are now the world standard, and to this day, Europe and Asia are well ahead of the US in commercial wireless largely for this reason, with billions of dollars in economic loss to the US. Similarly, Europe is again ahead in spectrum allocations for PS and CI: allocations for 2G digital professional mobile radio (for TETRA, Tetrapol, GMS-R, etc.; see. e.g., the paper by Viktor Mayer-Schönberger, in footnote \_\_ above). The ATLIS plan would put the US ahead in essential

OFDMA, etc. could be pursued. As these are developed, the traffic on the old spectrum would be shifted to the new spectrum, and the old spectrum would then be integrated into the multi-band service: this could be planned for optimum utility.

In addition to basic and advanced communications for PS, CI, and PE customers, other high-public-benefit functions, and PS-funding mechanisms, proposed for ATLIS are summarized in Exhibit 3 below.

This ATLIS proposal is closely aligned with the key published goals of the FCC Spectrum Task Force and statements by Chairman Powell on spectrum policy priorities, as well as the demands of current communication applications and technology: i.e., due to their increasing complexity, magnitude, and cost, they increasingly call for (i) larger higher-capacity networks hence either major public-access networks, or as per the ATLIS proposal, major non-public networks shared by multiple entities in secure VPN mode, and (ii) multiple bands that are in frequency and amount suitable for the various types of coverage and applications involved.

The proposal is clearly responsive to current priorities for "Interoperability," "Homeland Security," spectrum efficiencies, spectrum availability for PS and CI, and advanced applications and technologies (which need new spectrum to deploy).

Equipment vendors and system integrators including SAIC, Motorola, EADS-EDSN, Microwave Data Systems, and Wi-Lan have been briefed and have interest in participation in ATLIS planning stages, subject to a showing of interest by the targeted stakeholders, FCC, and NTIA.

In sum, realization of the ATLIS proposal (even the core 902-928 MHz component) would substantially fulfill the critical needs for new wireless spectrum, applications, technology, mission-critical wireless service: it needs to be more, not less (as it has been) sophisticated and

and systems for Public Safety and Critical Infrastructure as well as provide viable Private Enterprise wireless for private businesses and a host of ITS functions.

Respectfully,

Warren Havens  
Telesaurus Holdings GB LLC  
DBA, LMS Wireless  
2509 Stuart Street, Berkeley CA 94705

Five Exhibits follow

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well-planned than commercial wireless.

## Exhibit 1

### ATLIS Spectrum

900 MHz Core Spectrum for the proposed ATLIS service

Block*	Wide band	Narrow band	Total	Under ATLIS Proposal
<u>N-1</u>	902.00 - 904.00		2.00 MHz	<u>PS &amp; CI Exclusive**</u>
M-A	904.00 - 909.75	927.75 - 928.00	6.00 MHz	PE, but <u>PS&amp;CI access &amp; priority</u>
<u>N-2</u>	909.75 - 919.75		10.00 MHz	<u>PS &amp; CI Exclusive</u>
<i>N-3 &amp; M-B (current)</i>	919.75 - 921.75	927.25 - 927.50		
<u>N-3 (per ATLIS)</u>	919.75 - 920.75		1.00 MHz	<u>PS &amp; CI Exclusive</u>
M-B (per ATLIS)	920.75 - 921.75	927.25 - 927.50	1.25 MHz	PE, but <u>PS&amp;CI access &amp; priority</u>
M-C	921.75 - 927.25	927.50 - 927.75	5.75 MHz	PE, but <u>PS&amp;CI access &amp; priority</u>
<u>Total</u>			26.00 MHz	

Above blocks are described in FCC rule §90.357. See note below. \*

Below is current band plan. Under ATLIS, gray N-1 and N-1 is for PS and CI. Also, the blocks could be restructured giving the same amounts of spectrum respectively to PS, CI, and LMS-M licensees but in solid blocks, or in paired spectrum.

N-1
M-A  
Wide band
N-2
M-B  
Wide band  
& N-3
M-C  
Wide band
M-A, B, C  
Narrow bn

\* From Table: Block key: “N” means “Non-multilateration” spectrum blocks, numbered here by LMSW as “1,” “2,” and “3.” “M” means “Multilateration,” and “A,” “B,” and “C” are the block designations of the FCC. Note: N-3 and M-A are the same: this spectrum is currently a shared allocation between Non-Multilateration and Multilateration operations. §90.357 sets forth these Multilateration and Non-multilateration spectrum blocks.

\*\* Prior to moving to the 5.9 GHz band, Non-multilateration systems (very short-range systems principally on roadway [e.g., “EZ Pass”] and other transportation systems) would be protected. The ATLIS networks would use the Multilateration spectrum to provide coverage within and near Non-multilateration systems.

Regarding the 4.9 GHz band, LMSW proposes a similar 50-50 spectrum allocation (as per above chart) between, on the one hand, PS and CI, and on the other, PE.

There would be a similar split in the 217-225 MHz band.

Despite appearances, this 217-225 MHz spectrum is largely available for the proposed ATLIS use:

- (i) 217-218 and 219-220 MHz is licensed to AMTS: per FCC filings by the subject licensees, most AMTS licenses issued to date were not placed in operation by the construction deadline, nor did they meet the coverage requirement. They are thus terminated automatically under §1.946 and §1.955. The FCC has planned but not yet scheduled an auction of AMTS spectrum. Rather than hold such auction, this spectrum should be licensed under the ATLIS proposal, for joint PS-CI use.
- (ii) Spectrum in 218-219 MHz has been only partially licensed, and this, only nominally developed.
- (iii) 220-222 MHz has been licensed in 5-kHz channel pairs (aggregation allowed) per auctions, but only a nominal amount (under auctioned and pre-auction licensing) is in actual operation: the 5 kHz equipment vendors, SEA and Securicor, both failed (see, e.g., granted request for extension of construction deadline of Warren C. Havens on ULS for Call Sign WHV211). It is highly doubtful that licensees would maintain, at large financial loss, operations of systems with few if any customers using equipment that is no longer being sold and supported and never had substantial success in the marketplace. In any case, these licensees are looking for a viable use of their spectrum, and the ATLIS plan presents such.

Also, there is 150 kHz in this band set aside for Public Safety.

- (iv) 222-225 is currently an Amateur band. It could be allocated exclusively for PS and CI use under the ATLIS proposal. Amateur use could continue on a non-interfering secondary basis.

## Exhibit 2

### Other Users in 902-928 MHz under ATLIS

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1. Low-power unlicensed Part 15 devices: see §90.361: Part 15 devices used in wireless systems (such as for wireless meter reading) for critical infrastructure would be switched to Part 90 status, and would operate under the CI spectrum allocation in the ATLIS 902-928 MHz band (tuned off of the PS allocation), and other Part 15 devices, such as indoor consumer cordless phones, and LANS (most of which are now on the 2.4 and 5 GHz bands using 802.11 variations) would be phased out: no further sales after a cut-off date.

It is a waste of ideal mobile spectrum to use it for Part 15 devices, especially when they have orders of magnitude more spectrum and capability via 2.4 GHz, 5 GHz UNII, unlicensed PCS, and Ultra Wide Band which promises to exceed the traditional unlicensed equipment in capability and cost. In any case, the importance of the ATLIS uses warrant these modifications of Part 15 use.

2. Federal and ISM use: see §90.353(a): Federal entities, via NTIA, have priority rights in 902-928 MHz for radiolocation but have used the band only lightly (Navy ship radar, some wind-profile radiolocation, and occasional other use). Under my proposal, Federal public safety use along with other public safety would be wide-scale, and for such ends, NTIA would coordinate and contain any other Federal use as needed so they would not interfere (appropriate NTIA-FCC rule changes would implement this).

ISM devices use 902-928 MHz, but they do not receive and do not intentionally or substantially transmit, thus pose little problem. After the Cutoff date, no further sales permitted of devices that radiate beyond a certain level.

3. Amateurs' use: see §90.361: Amateurs also may use this band on a secondary non-interfering basis to LMS (and Federal) operations but only slightly use it. A reasonable amount of use may be helpful in civil defense, especially if coordinated with the Amateur community (e.g., if they had mobile radios capable of basic interoperability with the ATLIS radios upon trigger by public safety). If Amateur use becomes a problem, the licensed ATLIS users would have good cause for grant of remedial restrictions or phase out by the FCC.

### Exhibit 3

#### Additional ATLIS Functions and PS Funding Mechanisms

[This Exhibit is Supplemented by the Supplement at its end. 11-4-02]

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Note: in items 1, 2, and 3 below, the ATLIS-enabled CMRS devices or the ATLIS radios would have integrated location capability (network and/or GPS) (a core capability in all 3G wireless and beyond):

#### ATLIS-enabled CMRS for E911, basic ITS functions, etc.

1. ATLIS networks, once sufficiently built out (equal or better coverage than CMRS), could replace and improve on CMRS for E911. CMRS devices and would all have FCC-mandated ATLIS RF chips for E911 calls, and by such they could be connected not only to PSAP's but via PSAP's to responders in the field (PS, and if needed, CI) heading to or at the incident location. Also, unlike CMRS-based E911, such ATLIS E911 would allow for group calls to the victims: often, responders will include a number of entities, such as police and medical, police and fire and medical, etc. This arrangement would save CMRS money (E911 is costing CMRS billions of dollars to launch, and eventually more to maintain) and lessen fears and insurance costs regarding liability: This savings would offset cost of the mandated ATLIS RF chip and (see text above). (CMRS could, of course, pass on the net costs, if any, to their subscribers.)
2. The same ATLIS RF chips would be DOT-mandated for installed or docked radios in all roadway vehicles (in most cases included in Telematics devices providing for communications, location, information, computing, and entertainment) to allow for "electronic license plates" and other basic safety functions, e.g.:
  - a. Authorization, by "smart" highway corridors, to qualified vehicles to use HOV and LEV highway lanes/ time slots (others get tickets automatically), or variable charges of highway lanes and time slots depending on the level of its noxious emissions, level of passengers per vehicle class, and congestion level.<sup>11</sup>

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<sup>11</sup> A partial implementation of this concept is Singapore's Electronic Road Payment ("ERP") system currently in operation. From the Singapore Land Transport Authority website: <http://www.gov.sg/lta/MenuFrame2.htm>.

Electronic Road Pricing (ERP) is simply an electronic system of road pricing. It is designed to automate our current road pricing system - no more paper coupons or enforcement officers at the gantries. The main difference is the pay-when-you-use principle. This is a fair system as the motorist is charged only if he passes the ERP gantry.

Its Aim. With ERP, motorists will be more aware of the true cost of driving. Charges will be levied on a per-pass basis and can vary according to time and



- b. “Push” and “pull” notification of dangerous or congested road conditions ahead (and disabling entertainment and [other] communications where warranted).
- c. PS one-way broadcasts of voice and data messages in certain emergencies.
- d. Other functions under the general capability provided whereby vehicles on the road can interact with PS and the (increasingly “intelligent”) highway systems, saving tens of thousands of life per year and (per ITS America) and billions of dollars in lost workforce productivity, mitigating environmental impact, etc.

In short, ITS wireless should not be left to a patchwork of CMRS and small private systems.<sup>12</sup> ATLIS can make ITS wireless effective as a principal goal: PE ATLIS can carry most of the ITS traffic. This was clearly contemplated by the FCC when allocating the

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congestion levels. With this system of charging, a motorist will be encouraged to choose whether to drive, when to drive and where to drive. He may choose a different route, destination, time of travel, or not to travel at all. He may decide to car-pool or use public transport. Those who choose to pay and stay on the road will enjoy a smoother ride.

Its Advantages. *Fair*: Charges are based on usage so those who contribute more to the congestion, pay more and those who use the roads less frequently or who travel during non-ERP hours will enjoy more road tax rebates. *Convenient*: No need to buy daily/monthly paper licences. *Reliable*: Does not need human enforcement personnel, thereby removing the potential for human error.

This Singapore ERP uses RF readers such as used in “EZ Pass” technology on Non-multilateration LMS spectrum. Our idea in the text above would expand on this ERP system including via (i) use of wide-area wireless networks tracking the vehicles (integrated with fixed-point EZ pass type ID readers) so that a larger extent of highways throughout a region are involved, and (ii) more sophisticated electronic tags or license plates and more levels of pricing including for High Occupancy Vehicles (“HOV’s”), Low Emission Vehicles (“LEV’s”), noxious emissions, etc.

<sup>12</sup> See: Paul Najarian, “Is a Wireless Architecture the Future of ITS?” in *ITS View* (journal of ITS America), July 2001 Issue, available at below Web link.

<http://www.itsa.org/ITSView.nsf/ff53871fee52042a85256a6e00096b5b/73f38dc16296b185256a6f000b816c?OpenDocument> . Mr. Najarian, at the time of writing the article, was the ITS America director of Telecommunications and also directed its ITS Public Safety and Telematics. This article discussed the need for a dedicated communications architecture and infrastructure, including its wireless infrastructure components, for Intelligent Transportation System applications, discussed how this need is not being met by existing plans and available networks and technologies, and proposes steps toward meeting this need. ATLIS would in large part provide for these needs, in conjunction with the new 5.9 GHz DSRC services.

Location and Monitoring Service in the 902-928 MHz band.<sup>13</sup> See also the TIA-ETSI Project MESA's description of the need to coordinate advanced ITS and PS wireless is in the Project MESA Statement of Requirements, including in §8.6 "Transparent network and system access" in the ETSI draft V.10, at <http://www.projectmesa.org/SoR.htm>.

Regarding items 1 and 2 above, the owners of the ATLIS-enabled devices would be charged a monthly fee (collected by the CMRS provider) for the Federally mandated capabilities and use of all Federally mandated functions. (If, e.g., \$1/month/device, and assuming 120 million devices, and 10¢/device collection and handling fee to CMRS, then the net proceeds would be \$1.3 billion/year.) If PS ATLIS network capability is solely used for these functions, then all the net proceeds would go to PS; if PE capability is involved, then it would obtain a prorata amount of the proceeds. In addition, CMRS users electing to use the ATLIS capability for certain ITS-functions or other functions provided by PE ATLIS would pay use fees to PE (per collection arrangement with CMRS or direct billing by ATLIS PE).

Greater Back-up Capacity. Via the arrangements described above (whereby all CMRS phones would be capable of operating on the ATLIS network, at least for certain basic voice and data functions), in a large-scale emergency, if there were not sufficient ATLIS radios in the affected area,<sup>14 15</sup> then PS, and the various other persons involved in emergency responses (professional and volunteer) working under PS, could use the ATLIS-enabled CMRS phones (again, while these would not have all of the functions of an ATLIS radio, they would be serviceable in such cases), and by such, keep communications interoperable on the ATLIS network.

3. Asset tracking for Homeland Security. Tracking assets, including large shipping containers and their contents, besides having major commercial value, presents one of the major unsolved problem areas for Homeland Security due to the potential for using them as means to deliver contraband and for terrorism. This was discussed at the annual meeting of the Intelligent Transportation Society at the session on 4-30-02 "Tracking and Tracing Assets, Cargo, and Operators." Currently, there are inadequate means at US borders and internally to check container contents, assure that locks and seals are not broken after inspection on route, etc. Once ATLIS is sufficiently built out, it can provide the needed functions,

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<sup>13</sup> See FCC releases in PR Docket No. 93-61. Available in the LSM auction "Bidder Package" at: <http://wireless.fcc.gov/auctions/21/releases.html#bip>.

<sup>14</sup> In such case, ATLIS radios could be borrowed from other areas, but this could take time, and would have limits that may be exceeded in some cases.

<sup>15</sup> Per the priority-access arrangement described in the text above (whereby PS and CI would have priority access to all PE ATLIS network capacity in defined emergencies), the more PE network capacity is built out, the more back-up *network* capacity is available for PS. But to use this PE network capacity, PS needs reserve radios. Since they will probably only keep modest reserve radios for day-to-day and "routine" emergencies, the issue is: where to get a larger pool of reserve radios in especially large-scale emergencies. The above is a solution.

probably in conjunction with an integrated Mobile Satellite Service (see footnote \_\_\_ in text above).

4. Wireless links for remote environmental monitoring: of water, air, ozone, etc., for point source pollution and overall ecosystem health; for certain wildlife monitoring; and for detection of intentional or accidental pollution via chemical, biological, or nuclear releases. For this, foundation and corporate vendor co-funding grants would be sought, in conjunction with uses by research institutions and other educational functions.

#### Exhibit 4

#### 800 MHz Interference / Consolidation Proceeding, WT Docket 02-55: ATLIS Solutions

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From the LMSW filing in WT Docket 02-55:

The relevance of the ATLIS proposal in the above-captioned proceeding is as follows. This proceeding concerns, fundamentally, the problem of lack of spectrum in suitable frequency ranges for wide-area wireless for PS, CI, and PE (the Private Enterprise in this case being Nextel and other CMRS). This has resulted in congestion in the 800 MHz band, with resultant interference. For administrative use, and especially for tactical situations, interference to PS wireless is a serious problem and reliability and availability must be higher than in CMRS. PS needs more spectrum. CI also uses wireless for mission-critical purposes and also needs more spectrum. PE has the greatest amount of traffic and growth and needs more spectrum. These respective needs and interests clash in 800 MHz. Solutions are pursued in this proceeding.

The ATLIS proposal could substantially contribute to a solution by providing spectrum needed for PS and CI. By using the ATLIS spectrum, PS and CI would have less demand on their 800 MHz spectrum. For example, this would allow for a shift in use of their 800 MHz from interference-intolerant services such as traditional voice, toward services that are more resistant to interference such as higher-latency forms of non-real-time data (IP-based email and Intranet, etc.). Nextel and other CMRS ("PE") could do likewise on their 800 MHz channels adjacent to PS and CI spectrum. PS, CI, and PE would use channels that are adjacent to each other for such interference-resistant services, creating a buffer for their channels carrying voice and other interference-intolerant services.

In addition or alternatively, if the ATLIS proposal is implemented, Nextel could contribute to PS and CI some or all of its spectrum in 896-901/ 935-940 MHz, which brackets 902-928 MHz proposed for ATLIS, to expand the PS and CI ATLIS spectrum allocations at 900 MHz.<sup>16</sup> In exchange, it would obtain comparable spectrum and/or certain consolidation of its diverse 800 MHz spectrum would be accommodated. This region, 896- 940 MHz, is far less used than the 800 MHz range subject of the proceeding. And it is far more readily available than the 700 MHz PS and CMRS allocations encumbered by TV use for many years to come. Even if this 700 MHz were available now, PS needs far more spectrum (see the PSWN and other PS filings in this proceeding, and references in Exhibit 2 below). This 896-940 MHz range (not here considering 901-902 MHz, and excluding here 928-935 MHz) is an available 36 MHz. This is within the worldwide GSM 900 MHz band and would allow leveraging technology and components used in over half of all CMRS radios in the world,

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<sup>16</sup> Nextel also 220 MHz Phase II licenses it could contribute to the ATLIS PS and CI allocations within the 217-225 MHz range.

which is several orders of magnitude greater in volume than the total of PS and CI radios in the United States,<sup>17</sup>

The large cost savings to PS afforded by the ATLIS plan, including via priority access in emergencies to the 13 MHz of PE capacity, would in itself justify a range of interference abatement measures in 800 MHz.

The ATLIS plan would also relieve CMRS (including Nextel and cellular CMRS in 800 MHz) from E911 requirements and traffic.<sup>18</sup> E911 calls would be carried on the ATLIS network via embedded ATLIS RF capability in all CMRS devices.<sup>19</sup> This would give more speed and control to PS in handling E911 calls, including via PSAP patching the calls to PS first responders who have ATLIS radios. This shift of E911 to ATLIS would relieve CMRS from the high costs, in dollars spent and capacity used, to provide E911 capability, and such future cost savings could contribute toward current and future solutions in 800 MHz interference.

In addition, ATLIS would provide a vast array of wireless services for Intelligent Transportation Systems.<sup>20</sup> These require dedicated spectrum and systems.<sup>21</sup> Some of these are PS functions (governmental highway related agencies), some are CI (local transit), some would be handled by PE (consumer Telematics), and some would involve public-private partnerships (PS-CI-PE). There is a great need for ITS wireless in the nation for highway efficiency and safety, workplace productivity (via congestion reduction), pollution abatement, and quality of life. Unless a major spectrum is allocated for these purposes, such as per the ATLIS proposal, these ITS needs will not be well served and they will compete for already congested PS and CI spectrum including at 800 MHz.

Further, unless there is major new spectrum such as ATLIS proposes for PS and CI, they cannot as easily or economically implement spectrum efficient new technology, and without this, congestion in 800 MHz cannot be as well relieved. Just as it is far more efficient to build a new house on new ground with a choice of best materials than it is to rebuild an existing one within its limitations, it is also far more efficient to build new wireless on new spectrum with whatever technology is best and most efficient, including wider-band technology such as in commercial 3G.

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<sup>17</sup> See below Exhibit 2, p. 22, footnote 7.

<sup>18</sup> See below Exhibit 2, pp. 30-32.

<sup>19</sup> PS would, in this case, either get the GPS location fix from the CMRS device, if the device had such capability, or it would determine the fix via radiolocation techniques using the ATLIS base stations (TDOA, AOA, "Radio Camera" multi-path fingerprints, etc.), or both. LMWS expects that most all CMRS devices used in wide-area services will have embedded GPS in the near future. However, network based location would be an important supplement including in urban canyons, larger buildings, difficult terrain, and for redundancy.

<sup>20</sup> See below Exhibit 2, pp. 30-32.

<sup>21</sup> See below Exhibit 2, p. 31, footnote 12.

The above summarizes ways that ATLIS could contribute to solutions in this proceeding, directly by providing spectrum for relief of congestion in 800 MHz, and indirectly by affording PS and CI m major opportunities and cost savings in implementing interoperability and new technologies and services. In addition, there are other ways in which the spectrum allocations for PS and CI in the ATLIS proposal would allow for relief of interference in 800 MHz. The principal purpose of this filing is to introduce into this docket the ATLIS proposal so that the parties involved can consider both the above and other ways in which the ATLIS proposal can be considered in solutions under this proceeding.

## Exhibit 5

### ATLIS concept paper: filings in FCC dockets

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The "ATLIS" white paper summary, with appropriate accompanying pleadings, has been filed in relevant FCC dockets, all available at FCC website under ECFS:

1. ET Docket 02-135, Spectrum Task Force: Filed in Reply Comments.
2. Docket RM-10403, concerning new rules in the 902-928 MHz band: Filed with an Ex Parte letter sent to each FCC Commissioner.
3. WT Docket 00-32, concerning 4.9 GHz: Filed in Reply Comments.
4. PR Docket 92-257, concerning AMTS (217-218/ 219-220 MHz): Filed in a petition for reconsideration asking not to auction this spectrum but set it aside for PS and CI.
5. WT Docket 02-224, concerning Access Spectrum (Access 220) waiver request in the 220-222 MHz band: Filed in Reply Comments suggesting that 220 MHz does not need Band-Manager licensing as much as it does a larger solution, as ATLIS would provide.
6. WT Docket 02-55, concerning 800 MHz interference/consolidation: File in Comments.
7. WT Docket 02-310, FCC WTB 2002 Biennial Review: Filed in Comments.
8. WT Docket 01-90, concerning ITS 5.9 GHz: Filed soon in an Ex Parte filing.

**Attachment 1b**  
**Supplement to the ATLIS white paper, Attachment 1 above**

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**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Spectrum Policy Task Force Seeks	)	ET Docket No. 02-135
Public Comment On Issues Related	)	
To Commission's Spectrum Policies	)	
	)	
Public Notice DA 02-1311	)	
Released June 6, 2002	)	

Supplement to Reply Comments of  
Warren C. Havens and Telesaurus Holdings GB, LLC  
DBA LMS Wireless  
(Late Filed Ex Parte)

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“ATLIS” White Paper filed 9-6-02,  
Supplement:

Further Regarding a  
902-928 MHz “Public Chip” in all CMRS Devices  
Providing Location and Monitoring for Safety and Efficiency:  
E911, ITS, 4G Ad Hoc Networks, and

*“Spot Market Wireless”*  
Enabling Spectrum and Market Efficiencies

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November 4, 2002

## Introduction

Warren C. Havens (“Havens”) and Telesaurus Holdings GB, LLC (“Telesaurus”) together DBA “LMSW,” filed on 9-6-02 a white paper in the above-captioned proceeding (the “9-6 Filing”). It proposed an “Advanced Technology Land Infrastructure Service” (“ATLIS”) to provide mission-critical wireless for Public Safety (“PS”), Critical Infrastructure (“CI”), and compatible Private Enterprise (“PE”). This white paper included a description of potentially-mandated wireless capability in all CMRS devices to operate on ATLIS<sup>1</sup> via an embedded ATLIS RF chip, in order to provide for superior E911 service than currently being developed and contemplated, a variety of critical Intelligent Transportation System (“ITS”) communication functions, and other functions for public safety and transportation efficiency (herein, the “Public Chip”) (in the 9-6 Filing, see Exhibit 3, copy attached below, items 1 and 2).

The mandated Public Chip would operate on the 26-MHz wide Location and Monitoring Service (“LMS”) spectrum (902-928 MHz). It would provide modest-speed two-way data and real-time voice. It would provide highly accurate location and tracking via transmitting embedded GPS-receiver fixes and signals for terrestrial location determination. (Vendors could provide Public Chips with additional capability, as long as the mandated functions were provided.)<sup>2</sup>

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<sup>1</sup> The functions described herein would be most easily achieved via CMRS radio devices installed in vehicles rather than in handheld devices, since vehicles provide more space for the components (hence, less time and cost involved in reduction and integration), more power from the vehicle battery, and better antenna systems, including greater potential for diversity and smart antenna systems. Thus, it would make sense to first mandate the Public Chip in vehicle-installed CMRS radios, such as in Telematics computer/communication units. A second phase would be inclusion in portable devices.

<sup>2</sup> For example, for public “hot spot” system access (802.11[\*], ITS 5.9 GHz DSRC, etc.).

Herein, we primarily discuss basic concepts regarding how such a Public Chip could also, beyond the E911 and ITS functions, facilitate *spectrum* and *market* efficiencies in CMRS by providing what we describe as “Spot Market Wireless” or “SMW.” We also note how the Public Chip could embody and facilitate 4G “smart radio” techniques to increase spectrum use in time and space, a topic of interest to the Task Force and a focus of the DARPA XG project.

The functions LMSW proposes for the Public Chip in the 9-6 Filing and in this Supplement are consistent with the Commission’s original objectives and foresight in creating the LMS. The entire ATLIS plan, including the Public Chip functions, would fulfill and complementarily expand the broad scope for the LMS described by the Commission in the LMS rulemaking proceedings.

SMW could be implemented either as we propose, via a Federally mandated capability in all CMRS, or possibly by the market without such mandate. In this Supplement filing, we only discuss SMW via the ATLIS Public Chip, since we believe it is the most feasible and best means to implement SMW, via the most available and cost-effective spectrum, and since it would provide, in addition to SMW, the cornerstone for much-improved E911, and a host of sorely needed ITS functions and 4G techniques.

These mandated ATLIS Public Chip functions would be, under the ATLIS plan, provided on a not-for-profit basis (assuming here that it would not use more than a certain amount of total spectrum capacity, to be defined).<sup>3</sup> (See the LMSW 9-6 Filing regarding potential funding mechanisms.)

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<sup>3</sup> The Public Chip operation would share the entire spectrum with the PS, CI, and PE usage via active coordination of spectrum use in time and space, consistent with concepts of the Spectrum Task Force and the DARPA XG project (see end of this note). In this regard, this ATLIS proposal for the 26-MHz-wide 902-928 MHz, where the multi-function Public Chip services would underlay or share the spectrum with the PS/CI/PE services, would be an ideal

The PS, CI, and PE licensees under the ATLIS plan would benefit by sharing the spectrum with this Public-Chip function operating on CMRS devices, including via an increased volume of radio-frequency based components for this spectrum, and, for Public Safety and ITS applications, the direct use of the Public Chip for E911 and a host of ITS functions (see the 9-6 Filing, and further discussion herein). Also, in emergencies, CMRS devices could be used on the PS and CI ATLIS networks if there was an insufficient supply of mission-critical-class radios, since all CMRS devices would have the ATLIS Public Chip. CMRS providers would benefit via relief from costly E911 obligations, by a more competitive and efficient market (see below), and by use of the Public Chip location function in 4G technology and networks.

ATLIS Public Chip  
and Spot-Market Wireless

The Public Chip would allow all CMRS users to select among the CMRS providers<sup>4</sup> in time and location as follows:

(i) As the market may decide, CMRS devices would have the capability, via hardware or software, to operate on multiple CMRS bands and technologies, and to use various Quality of Service classes (principally, Conversational, Steaming, Interactive, Background). This is increasingly being done and should become more prevalent and cost effective as technology continues to improve.

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candidate. (Regarding this XG project, see, e.g., Paul Kolodzy, “XG Initiative,” DARPA/ATO, 25 April 2001.)

<sup>4</sup> It could also notify the CMRS user of the presence of “hot spots” including public Wi-Fi, 5.9 GHz ITS, Free Space Laser, and other high-speed access systems, for manual or automatic connection (assuming the device was equipped to use such systems, or that the device user otherwise wanted this information in case he/she carried other devices so equipped). Likewise, it could provide the same function regarding satellite coverage and balloon (e.g., Space Data) coverage in areas not served by terrestrial wireless networks.

(ii) These devices would also have location/ on-going tracking capability via GPS and terrestrial multilateration.<sup>5</sup>

(iii) The devices would—when manually prompted by the end user, or per pre-set criteria, or per the user’s choice of settings—be fed data on the CMRS services available at the given location and time (various vendors and their various QoS Class offerings and pricing). For this purpose, it would need to have access to this information per FCC mandate. The information would come from the CMRS providers (access to their network data for predictive and real time determinations) via an appropriate clearinghouse for this purpose, and perhaps supplemented by spectrum monitoring devices in certain areas.

(iv) The device user could then, on the spot, make a purchase, and change such decision as often as he or she sought. The user could have a default setting to a particular carrier and QoS class(es) or could elect such per each communication.

In brief, the idea is simply to provide more information and choice and by such a more efficient market. In purchase of most basic goods and services, the consumer has easy access to a variety of providers. Even when the consumer sticks with a provider over a long term, it is the option to change and ease of change that provides a level of price/performance that makes such lack of change an acceptable option. In CMRS, which is a basic service these days, there is not yet a very efficient market. To get a good deal, the user generally must contract for a year or more of service, and buy a quantity of airtime

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<sup>5</sup> Also, the accuracy of network-based location technique employing one frequency could be enhanced by using the ATLAS spectrum along with the CMRS spectrum the CMRS device operates on. Use of two frequencies, in techniques such as the “Radio Camera” technique of (the former) US Wireless, will greatly enhance the “resolution” of the location determinations due to greater distinction in the combined (two frequency) multipath readings verses readings of one frequency. LMSW was exploring this with US Wireless before it filed bankruptcy and was sold to Traffic Masters.

minutes that is either too much or too little; it is hard to switch; number portability is not yet in place or a solution; etc. The proposed SMW would greatly improve market efficiency in CMRS and remedy these and other shortcomings.

SMW as described would also allow carriers to market their capacity more effectively as they each could inform all CMRS users of their various QoS Class offerings in a given time and location. As currently conceived, the Public Chip would present to the CMRS user basic data on available carriers and their offerings in time and location. If a CMRS provider wished to transmit additional information, it could do so via the CMRS carrier spectrum if the end user elected to receive advertisements, or it could post it on a website for easy access by the CMRS device, including via text-to-voice. By these arrangements, CMRS providers could test the market quickly and efficiently for various offerings and respond per market demand.

Such an arrangement would increase many fold the competitiveness in wireless, since the end-user would not be tied nearly as locked down to one carrier's coverage, offerings, service contracts, and pricing, and since carriers could much more quickly and efficiently know and respond to market demand.

This, in turn, would increase usage and drive technology improvements including for spectrum efficiency. It may be a more effective means and would be a more market-driven means to achieve spectrum efficiency than FCC mandates or flexibility aimed directly at spectrum efficiency. In any case, it would complement the latter.

Carriers would either cooperate to implement such plan, or (more likely for some time) new entities would arise that buy capacity from carriers on a wholesale basis (which

could vary from long term contracts to short-range spot purchases as in the electric generation market), and make the multiple offerings available to their customers.

In addition, SMW as described should also stimulate small businesses entering CMRS, filling valuable niches that the large nationwide and regional carriers do not serve or under serve. This is because such smaller operators would have access to the SMW market along with the larger carriers, and if they have a good product on a band and using a protocol that is supported by enough CMRS devices (see above), then they would be able to compete.

#### Enabling 4G Wireless

By its location/ tracking function, the Public Chip could facilitate Ad Hoc and peer-to-peer networks—spectrum-efficiency concepts of the Spectrum Task Force and DARPA XG. Also, via multi-band, multi-protocol CRMS devices that would predominate in SMW, spectrum efficiency could increase via use of multiple bands and protocols in a particular communication or for sequentially communications, as may best suit the nature of the communication, the demand, and the price the user is willing to pay. By such functions, the Public Chip could also facilitate spectrum underlays in bands in which underlays are implemented. (See footnote 3 herein, as to how the ATLIS LMS 902-928 MHz band could itself be a test bed and home for coordinated underlay wireless: the CMRS Public Chip functions would underlay the PS, CI, and PE uses.)

#### FCC Mandate

Should the government mandate a Public Chip for the wireless marketplace efficiency and other described purposes? The FCC has mandated E911 for public safety. Major highways and transportation facilities are publicly mandated and operated. There

are many other mandates and facilities to provide for critical public safety and efficiency in transportation and communication. Similarly, it can mandate measures for market efficiencies and spectrum efficiencies in CMRS wireless as noted above.

The proposed ATLAS plan including the Public Chip functions should be subject of rulemaking in which these matters are explored. For this purpose, LMSW has submitted the 9-6 Filing and will submit this Supplement in Docket RM-10403 (considering rulemaking in 902-928 MHz).

Respectfully submitted,

**Warren Havens**

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Filed via the FCC ECSF  
November 4, 2002



Attachment 2

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Access 220, LLC	)	WT Docket No. 02-224
	)	
Request for Waivers with Associated	)	
Proposed Conditions to Establish	)	RM-9664
Band Manager Status in 220-222 MHz	)	

Reply Comments [\*]

Warren C. Havens (“Havens”) holds, or via Telesaurus Holdings GB, LLC (“Telesaurus”) (in which Havens holds majority controlling interest) (together, “LMS Wireless,” their DBA [“LMSW”]), holds: (i) Automated Marine Telecommunication System (“AMTS”) licenses in various States, (ii) licenses in the 220 MHz service (“220 MHz”) in many States, (iii) interests in Net Radio Group Communications, LLC which holds a large number of 220 MHz licenses, (iv) most of the LMS Multilateration (“LMS-M”) ‘A’-block licenses in the nation, and (v) the VHF Public Coast (“VPC”) licenses in many states.

LMSW hereby submits Reply Comments in the above proceeding with respect to the above-captioned Request by Access 220, LLC (“Access” and the “Access Proposal”) concerning the 220-222 MHz band (“220 MHz”).

Summary and Background

LMSW agrees that 220 MHz needs FCC relief to enhance chances of viability. LMSW, with its interests in this band, and in the adjacent AMTS band, would like to see Access and other substantial spectrum holders in 220 MHz become viable since that would tend to make the whole band more viable to the benefit of other spectrum holders. (Likewise, LMSW is also

taking initiatives to improve the band for its interests and other licensees.) LMSW also respects the views and interests of Motorola and UTC in as much as it is exploring business relations with these entities. However, LMSW believes that there is a better more comprehensive approach to the problems in 220 MHz upon which the Access Request is founded. Also, LMSW has concerns with some procedural and substantive aspects of the Access Request. LMSW hopes that Access and the parties who filed supporting Comments to the Access Request will consider the merits of our alternative proposal below in terms of their own best interests, which LMSW believe would be served. The LMSW proposal will succeed only if it serves the best interests of a number of key stakeholders in the spectrum bands involved. A proceeding can serve as a forum, not only a grounds for support or contest.

With regard to 220 MHz, Havens was a principal in SunCom Mobile & Data in the early to mid 1990's when 220 MHz commenced and has been involved in the band ever since. Havens, via SunCom, submitted to the FCC in 1994 several requests for relief to enable consolidation of spectrum and multi-year buildout, but this was denied by the Commission. The SunCom petitions took the position that 220 MHz will fail, and the equipment vendors in this band will fail, unless by consolidation (which at that time needed rule relief) there are sufficiently large licenses in channel depth and geographic coverage, and enough time to construct them (per additional relief), similar to what, at that time, were conditions obtained via waivers by Fleet Call in 800 MHz. However, the Commission wanted to continue with the 220 MHz experiment, basically, to keep licensing to tiny chunks (and 5 kHz channels) for small local systems and businesses, and thus not to facilitate consolidation and not grant multi-year construction. The Havens-SunCom approach proved correct. It is now clear that, as Access indicates, to succeed, channels must be consolidated into wider channels, and into larger

amounts, for competitive networks. LMSW proposes a plan below to facilitate and ultimately require this for all licensees in 220 MHz.

### Procedural Issues

LMSW does not believe that the Commission may grant, or that it would be proper to grant, a rule waiver that will apply to licenses not yet in the control of the applicant for the waiver. LMWS assumes that Access has a legally binding contract to obtain the spectrum from Aerwav described in the Access Request, and that there is an expectation of grant of the transfer by the Commission. However, it is not clear that the Commission can grant relief concerning licenses to a party who does not yet hold such licenses, nor that it was a good use of Commission time and the public's time to commence a public proceeding in such circumstance.

With regard to 220 MHz licenses Access describes that it may in the future acquire, for which it also seeks relief at this time, that would appear to be impermissible or at least a dangerous precedent and one that could lead to unfair competition and abuse (no intention of such suggested here). For example, if a party that has no legally binding contracts to obtain licenses is granted relief with respect to those licenses, then it holds value in those licenses it could in one way or the other exploit: it was granted value by the government for no consideration. That is unfair, if not also impermissible. It would certainly be a waste of Commission time to grant relief for a future possibility. If such a request for relief was before a court, the petitioner would be found to lack standing under the Constitution. See SunCom v. FCC,<sup>6</sup> where the Circuit Court found that since SunCom, per its findings, did not have legally binding contracts with 220 MHz licensees with respect to their licenses, SunCom had no standing to petition the Court to review the FCC denial of the relief it sought, noted above.

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<sup>6</sup> *SunCom v. FCC*, US Court of Appeals, DC Circuit, Decided July 9, 1996.

While the Court did not address the matter of whether the FCC could have lawfully granted such relief in this situation, this ruling warrants attention regarding this threshold standing issue.

In addition, LMSW does not believe that the waiver standards in §1.945 have been met by the Access Request. These standards involve demonstrating unique or unusual factual circumstances, and/or frustration of the purpose of the subject rule if it were to be applied and not waived (again, in the particular special circumstances).<sup>7</sup> LMSW reads the Access Request to boil down to: 1) 220 MHz is beset with lack of development due to certain problems Access generally touches upon, 2) Band Manager status allows for certain flexibility in getting spectrum in the hands of certain would-be users, and this could stimulate development and use in 220 MHz, but this is not allowed under current rules, and 3) therefore, waivers should be granted, coupled with adoption of new rules (a host of Band Manager rules or conditions).<sup>8</sup>

LMSW basically agrees with the two premises, but not with the conclusion. First, while waiver grants may be accompanied by conditions, to ask for replacement of rules by other rules of this magnitude (these many conditions and potential complications in administration and potential future changes) does not seem appropriate through the vehicle of a rule waiver request. More importantly, LMSW believes the conclusion in item 3 should be-- therefore, there should be a rulemaking commenced to explore what changes are needed for all licensees, and this may include Band Manager status for all licensees who elect such, or may involve pioneering or

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<sup>7</sup> Access may present unique circumstances in that it has Band Manager status in its 700 MHz licenses and it holds most of the Nationwide 220 MHz licenses, but neither of these are relevant to grant of such status in 220 MHz. A person who holds only one EA license and no current status as Band Manager could make the same case as Access as to why the flexibility it affords would be good for its business prospects (or the public interest). Further, LMSW believes that assertions of facts such as its financial capabilities, special relation with Motorola, etc. when presented as relevant to the requested Commission action, must be explained and documented so that the Commission and third parties can understand what these are and the proof.

<sup>8</sup>

customized application of spectrum leasing principles once the FCC's proceeding regarding Secondary Markets is completed.

Secondary Markets Proceeding Should be Looked to  
For Needed License "Leasing" Flexibility

LMSW believes that the FCC's Secondary Markets proceeding<sup>9</sup> will remedy the issues Access raises for which it seeks Band Manager status, but other relief is also needed which the Access Request, if granted, would only indirectly solve to some degree, as discussed below.

Further, Band Manager status and the related procedures and conditions are not yet proven (and Access did not describe any substantial success to date by any Band Manager). While in time it may prove successful, it is at this time very experimental, and 220 MHz probably does not need more experiments. If Access gets the relief it seeks, it is probable that other licensees will request the same, thinking it is what is needed. This can tie up a lot of Commission time and time of licensees that LMSW believes should be directed to a more comprehensive fix. The better approach is for licensees in 220 MHz to appeal to the Commission to accelerate conclusion of the Secondary Markets proceeding and apply the results to 220 MHz, including in any special way that may be appropriate, and to participate in rulemaking along the lines of the proposed plan described below. The Band Manager plan was established first, and later the Secondary Markets proceeding took a broader look at flexibility in licensing to accommodate secondary markets, including spectrum leasing with less conditions than imposed in Band Management schemes such as a requirement to provide via contracts use

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<sup>9</sup> LMSW understands that at least three of the Commissions are firmly in favor of the goals of and means considered in this Proceeding, that the events of September 11 of last year has delayed progress in this proceeding due to rearranged priorities, but that it will be completed. If there are unresolved concerns regarding Section 310(d) of the Communications Act, Congress would make the appropriate change as it also is supportive of these goals.

to over half of the spectrum. With simpler leasing, the licensee could lease any percentage of the spectrum, and in other ways be less restricted than via Band Manager status and conditions.

#### LMSW Proposal for 220 MHz

LMSW believes that 220 MHz needs more than flexibility for spectrum leasing (of which Band Manager arrangements is an early and restricted form). LMSW agrees with Access that 220 MHz also needs consolidation of 5 kHz channels, and generally of spectrum quantities to gather enough channels for wide-area multi-site applications. Without these, there is no equipment available (except for low-speed data applications) (the 5 kHz voice equipment has all failed and its vendors ceased making it), and small local systems are not sufficient of a business opportunity to warrant and sustain much development.

However, LMSW believes that the only way, and certainly the best way, for development of 220 MHz is to combine it with adjacent, also-underdeveloped bands, so that combined there is a clear critical mass to warrant aggressive development by equipment vendors and parties to consolidate more 220 MHz. Consolidation of adjacent channels and consolidation of licenses is allowed now. Band Manager status is not needed. The reason consolidation has not taken place to much extent<sup>10</sup> is that there is not yet sufficient business prospects even for the entire 220 MHz band: after the failure of the 5 kHz experiment, the whole communications-sector and the general market collapsed. Due to these, and the fact that only now is Motorola and Microwave Data Systems (and no others) close to having product, and the fact that 220 MHz is only 2 MHz, not a large opportunity relative to the major CMRS/ PMRS bands, there has not yet been sufficient

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<sup>10</sup> One company has substantially consolidated 220 MHz spectrum (adjacent channels, and large quantity of spectrum sufficient for wide-area multi-site networks). Havens founded and was the principal funding source of Net Radio Group Communications LLC, which acquired a plurality of 220-222 MHz in the western two EAG areas. It bid in the auctions with a plan to acquire blocks that fit together to allow adjacent channels sufficient for 12.5 kHz technology.

impetus and capital for much consolidation. This can be changed via the LMSW plan, discussed next.

LMSW intends to propose the following and related matters in a formal proposal for rulemaking in the near future.

LMSW's larger multi-band "ATLIS" proposal is set forth in the Attachment to the Attachment hereto: a petition for reconsideration by LMSW in the AMTS proceeding, PR Docket No. 92-257. This plan has also been presented by LMSW in Reply Comments in the 4.9 GHz proceeding, WT Docket No. 00-32. It will be filed as well this week in the FCC Spectrum Task Force proceeding, ET Docket No. 02-135.

As part of this larger multi-band ATLIS proposal, or in the alternative (if the ATLIS proposal is not accepted) then just for the proposed ATLIS 200 MHz component, LMSW proposes that the FCC establish a new service composed of AMTS, 218 MHz, 220 MHz, and the 222-225 MHz band, that is, an 8 MHz-wide 217-225 MHz service. PMRS and CMRS would be allowed. Paired spectrum would be created, thus allowing for a 4 MHz split if the 8 MHz is split in two. If a band is left in the middle, such as 2 MHz, then there would be a even greater Tx/Rx split for the paired channels, with the 2 MHz in the middle being for simplex and Time Division Duplex.<sup>11</sup> Existing licensees in AMTS, 218 MHz, and 220 MHz, would give up their current spectrum and receive an equal amount of spectrum in the new consolidated band out of the paired spectrum, unless they elected to receive this in the middle non-paired spectrum. If this

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<sup>11</sup> Mobile wide-area TDD is possible, e.g., its been used in Japan on a version of Handiphone, is being considered as a 3G standard in China (e.g., Link Air) and Europe (for the 3G TDD spectrum allocations), and is used in OFDMA technologies such as Wi-Lan's W-OFDMA, and advanced DSRC for US and European 5 GHz ITS allocations (5.9 GHz in the US). Apart from TDD for voice (where the most issues arise when using TDD for wide-area mobile applications), it is ideal for data applications, especially asymmetrical data that is likely to more and more predominate.

217-225 service is created as part of the multi-band ATLIS plan, then these existing commercial license holders would all get such new channels pairs from what is called in the ATLIS plan the "Private Enterprise" allocation, which would be side-by-side with the equal-sized allocation for Public Safety and Critical Infrastructure. After creation of rules for the above purpose, there would be a period of time for licensees to voluntarily trade, buy or sell such that some of this spectrum reorganization would be achieved. But by a certain deadline, what was not yet reorganized would be subject to the re-licensing.

If the 217-225 MHz proposal is not accepted, then LMSW would at minimum propose that the FCC undertake a similar reorganization of 220 MHz by itself: That is, new licenses would be defined such that each current licensee would give up its current spectrum and receive an equal amount of spectrum but with wider channels (10 kHz, or 12.5 khz). There would be a period of time for licensees to voluntarily trade, buy or sell such that some of this consolidation would be achieved. But by a certain deadline, what was not consolidated into such wider channels would be subject to this re-licensing.

Respectfully submitted,

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Filed via the FCC ECSF  
September 5, 2002



**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of the Commission's Rules	)	PR Docket No. 92-257
Concerning Maritime Communications	)	
	)	
Petition for Rule Making filed by	)	RM-9664
Regionet Wireless License, LLC	)	

Petition for Reconsideration<sup>^^</sup>

Warren C. Havens ("Havens") holds, or via Telesaurus Holdings GB, LLC ("Telesaurus") (in which Havens holds majority controlling interest) (together, "LMS Wireless," their DBA ["LMSW"]), holds: (i) Automated Marine Telecommunication System ("AMTS") licenses in various States, (ii) licenses in the 220 MHz service ("220 MHz") in many States, (iii) interests in Net Radio Group Communications, LLC which holds a large number of 220 MHz licenses, (iv) most of the LMS Multilateration ("LMS-M") 'A'-block licenses in the nation, and (v) the VHF Public Coast ("VPC") licenses in many states.

LMSW hereby petitions for reconsideration of certain decisions made in the *Second Memorandum Opinion and Order and Fifth Report and Order* in the above-captioned proceeding released April 8, 2002 (the "*2<sup>nd</sup> MO&O and 5<sup>th</sup> R&O*").

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<sup>^^</sup> [Note: this copy has non-material erratum corrections to the copy filed 8-26-02 on the FCC ECFS.]

Unlicensed AMTS Spectrum Should Not Be Auctioned  
But Set-aside for Public Safety and Critical Infrastructure

In the 5<sup>th</sup> R&O, the major Commission decision was, in brief:

21. In this *Fifth Report and Order*, we adopt rules that will streamline our licensing process for AMTS stations by utilizing a geographic licensing system. We will conduct an auction to resolve mutually exclusive applications for AMTS licenses. We conclude that our general competitive bidding [auction] rules, and the rules regarding the participation of small businesses in auctions that were applied to the auction of VPC licenses, should be used for auctioning AMTS licenses. [Item in bracket added.]

In light of the great need for more spectrum nationwide for public safety (“PS”) and critical infrastructure (CI”) entities,<sup>12</sup> mostly spectrum suitable for cost-effective wide-area mobile communications, and especially in light of the events of September 11, 2001<sup>13</sup> which have emphasized the magnitude and urgency of these needs, the Commission should reconsider this decision to auction AMST spectrum that has not yet been licensed (rather, AMTS spectrum except that which was properly licensed under the rules and kept valid under the rules)<sup>14</sup> (the “Unlicensed AMTS Spectrum”). Instead, the Commission should

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<sup>12</sup> Herein “Public Safety” (“PS”) means traditional public safety as described in Section 337(f) of the Communications Act (the “Act”), and “Critical Infrastructure” (“CI”) means entities described in Section 309(j)(2) of the Act.

<sup>13</sup> This is after the 11-16-00 release date of the *Fourth Report and Order and Third Further Notice of Proposed Rule Making* in the above-captioned docket (in which the Commission described its intention to proceed to auction Unlicensed AMTS [defined above] along with some proposed rule for that purpose), on which the 2<sup>nd</sup> MO&O and 5<sup>th</sup> R&O was based. Accordingly, after 9-11-02, this is the first opportunity (a petition for reconsideration of the 5<sup>th</sup> R&O) LMSW has had to formally raise this AMTS spectrum set-aside proposal with respect to the “9-11” events which have made exceptionally clear the proposal’s principal rationale: the above-noted needs of PS and CI.

<sup>14</sup> Havens is on record before the Commission, including in four pending Applications for Review involving AMTS licensing matters, regarding the invalidity under the rules of many AMTS licenses that, to this day, remain in FCC licensing databases. These and other filings present clear facts that are in the files of the subject licenses regarding such licenses failure to

make all of the Unlicensed AMTS Spectrum a set-aside for exclusive use by PS and CI under terms as presented in the Attachment hereto, or such other terms as the Commission finds most appropriate (the “AMTS PS-CI Spectrum”).

The Attachment hereto presents a rationale for this proposal, including a discussion of these needs of PS and CI, and suggests a means of implementation of this proposal via a multi-band service focused on PS and CI. This Attachment is an outline by LMSW of a proposed multi-band “Advanced Technology Land Infrastructure and Safety Service” (“ATLIS”), which includes the Unlicensed AMTS Spectrum. The final proposal, in the form of a white paper, will soon be submitted to the FCC Spectrum Task Force as well as in filings (on an Ex Parte or other basis) in dockets regarding the spectrum proposed for inclusion in ATLIS, including the Unlicensed AMTS Spectrum (in the above-captioned docket), 902-928 MHz, 4.9 GHz, 5.9 GHz, 217-218 MHz, 220-222 MHz, and 222-225 MHz. The attached ATLIS summary, and the final ATLIS white paper, will also be sent to parties who have interests in the subject matters, including NTIA, UTC and other CI entities, APCO and other PS, ITS America, Congress persons involved in PS, CI, and ITS matters, and others.

Whether or not the Commission accepts this ATLIS proposal in full or part with regard to other spectrum than the AMTS Unlicensed Spectrum, it should nevertheless proceed to create as soon as possible the proposed set-aside of AMTS Unlicensed Spectrum for PS and CI for the fundamental reasons given in the Attachment, including the described and documented PS and CI needs. As indicated above, LMSW will be seeking

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comply with requirements for initial application, requirements for construction coverage and deadlines, requirements to operate under licensing parameters without major modification not

feedback from PS and CI entities on this proposed AMTS PS-CI Spectrum set-aside, as well as on the larger, multi-band ATLIS proposal, and expects such feedback to include filings in the above-captioned docket.

As part of the process of establishing the AMTS PS-CI Spectrum set-aside, the Commission should undertake a careful review of all AMTS licensing and alleged operations to date and revoke or rescind all licenses for which the licensing rule requirements were not fully satisfied (e.g., see footnotes 3 and 4 herein).

As noted above, there is a compelling rationale for the proposed AMTS PS-CI Spectrum set-aside. On the other hand, there is clearly no compelling reason to auction the Unlicensed AMTS Spectrum. AMTS was established to provide for certain “integrated and interconnected” services (e.g., see 5<sup>th</sup> R&O, ¶ 22). This “integrated” aspect set it aside from the VHF Public Coast marine service, since it related to the requirement in §80.475(a) for continuity-of-service coverage among two or more stations on an AMTS system (VPC may involve only single stations, or stations that do not have overlapping continuity-of-service coverage). However, while the initial intent was to serve marine traffic by such unique “integrated” multi-site means, (i) the Commission has since permitted land mobile service with no limitation on the quantity of land mobile traffic vs. marine traffic served, and (ii) in the 5<sup>th</sup> R&O, the Commission replaced the old paragraph §80.475(a) with a new paragraph §80.475(a) which eliminated the coverage requirement that was the basis of the unique “integrated” aspect. Further, (iii), there is clear evidence from a review of the AMTS licensing files of stations that have thus far been reported as placed into operation, as well as from a review of the industry trade press regarding such licenses and the services their

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applied for and granted, and other defects including, for one license involving the Mississippi

licensees report that they are providing on these licenses, that there is little if any service being provided to marine traffic.<sup>15</sup> Even the placement of the stations on these licenses, chosen by these licensees, clearly shows their intent from the start to provide land mobile service to major population centers, not to provide marine service to the subject long coastlines or waterways.<sup>16</sup>

It is thus clear that there is no needed or even substantial marine service that has been or is being provided by AMTS licenses, and the Commission has already eliminated the “integrated” multi-site continuity-of-coverage requirement that was the basis of AMTS

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River, clear failure to meet the conditions under which a second AMTS block was granted.

<sup>15</sup> An exception, now basically moot, involved Watercom. As the Commission knows, the principal initial licensee in AMTS was Waterway Communications (“Watercom”). The Bureau maintained a policy to grant only one AMTS spectrum block in a license, unless a special need showing was made and accepted. Watercom obtained both AMTS spectrum blocks (2 MHz in total) based on a special need showing which the Commission accepted as demonstrating a need for this large quantity of spectrum, to be used along the Mississippi River system for commercial shipping (mostly barge traffic). However, per filings in Commission records on this license, SEC filings by the parent company of Watercom, as well as trade-press articles, Watercom only achieved approximately 1,000 radios in use over its entire Mississippi and Gulf Coast system, which would not begin to need even 1 MHz (1 block), certainly not 2 MHz. Thus, the basis for the special grant of both blocks proved defective (even if initially sufficient and sincere, which is questionable by a review of the filing and by the fact that Watercom never reported the clear lack of the asserted need in actual operations) and thus grant of that block should be rescinded. (The Commission has in other cases rescinded relief granted based on asserted need or cause, when such assertion proves invalid. To not do so would invite and reward baseless and insincere claims and unfairly enrich the perpetrators at the expense of fair-practice competitors.) Further, Watercom failed and sold its AMTS licenses and system several years ago—further proof that the AMTS service was not, even along this major US commercial shipping route, a needed and viable service. Further, after buying the Watercom AMTS licenses and stations, Mobex reported in the trade press that it intended to fill-in the gaps in coverage and provide land mobile service. This only suggests a further defect in the Watercom license: failure to comply with the required continuity of coverage per the old (pre 5<sup>th</sup> R&O) §80.475(a).

<sup>16</sup> Indeed, the placement of these stations manifestly failed to provide the continuity of coverage required under the old §80.475(a), and thus provided no basis for initial license grants or renewals.

marine service, and has allowed land mobile service with no limitation. Further, as suggested above, if a proper review of licenses issued to date is undertaken (even a cursory one for most licenses: application coverage maps, dates and details of construction notification letters, etc.), and pursuant thereto, licenses are terminated that have not complied with rule requirements, then the Commission will find that there is little AMTS spectrum that is licensed.

If, contrary to our arguments above and asserted underlying facts, the Commission finds there are substantial unique services provided by existing valid AMTS licenses, still, the above proposal should be seriously considered, and implemented fully or at least partially due to the importance of the PS and CI needs that it would serve.

In terms of the need for further AMTS licensing for commercial land mobile service, there is no compelling case, certainly not as compelling as the case for the proposed AMTS PS-CI Spectrum set aside. For example, the Commission has licensed by auction 220-222 MHz for commercial land mobile service, and this spectrum is far from being widely used. In fact, the initial vendors of 5-kHz equipment have all failed regarding their 220 MHz products (Uniden, Securicor, SEA, and II Morrow) and ceased providing such equipment. Motorola has recently developed 12.5-kHz land mobile equipment, but has not yet completed testing and preparation for commercial sales. Microwave Data Systems has telemetry products in this band, but is only commencing sales. Thus, the 220-222 MHz spectrum is almost fully undeveloped (in terms of operating systems with viable equipment and customers). There is no need for bringing to the commercial land mobile market an additional, adjacent 2 MHz of AMTS spectrum.

Instead, for reasons made clear in the Attachment, by establishing a PS-CI set aside in AMTS (and by reallocating 222-225 MHz from Amateurs to PS and CI), shared networks can be developed between PS, CI, and private enterprise (“PE” as discussed in the Attached). This is critical for PS and CI for reasons given in the Attached, including that PS (and often CI assisting them) needs large network capacity reserves for large emergencies that is many times the capacity they use for day-to-day use and ordinary emergencies. This would be prohibitively expensive for PS to build and maintain by itself. PE, serving the non-PS, non-CI land mobile market (which is many times the size of PS and CI markets combined) can provide this reserve via priority access. The case for this, with examples of major implementation in Europe, is given in the paper cited in the Attachment presented at the Harvard University School of Governmental.

. . . . [Irrelevant sections deleted.]

This Petition for Reconsideration is

Respectfully submitted,

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Attachment follows

[Attachment to Petition for Reconsideration]

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Summary, 8-25-02

ATLIS White Paper  
Regarding Use of 902-928 MHz  
Supplemented by 217-225 MHz and 4.9 GHz  
for Public Safety and Homeland Security, Critical Infrastructure, and Private Enterprise:  
an Advanced-Technology Land Infrastructure and Safety Service  
("ATLIS")

[The rest of this document is provide at the end of Attachment 1, above, to these Comments in  
WT Docket No. 02-310]